



NORTHGATE EXPLORATION LIMITED

7

ANNUAL REPORT

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Northgate Exploration Limited

1973 Annual Report

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This scene at the Tynagh Mine was taken during mid-1971 while construction of the new facilities in preparation for the treatment of pit primary and underground primary ore was in progress.





Foreword

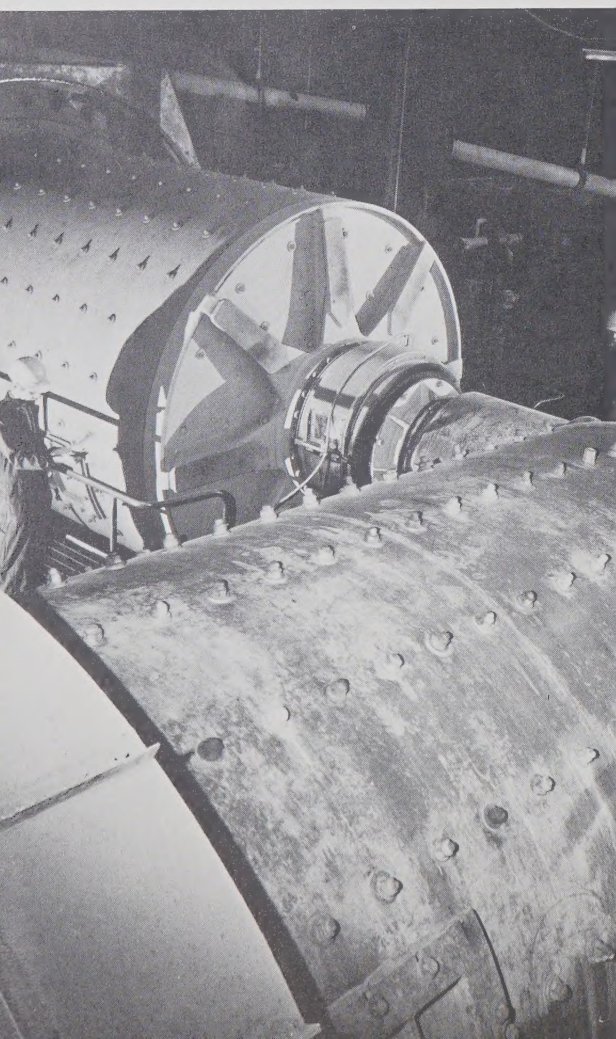
Northgate Exploration Limited is a mining and exploration company with main operations in the Republic of Ireland. Its two principal wholly owned Irish subsidiaries are Irish Base Metals Limited operating the Tynagh lead-zinc-silver mine at Tynagh, County Galway, and Gortdrum Mines (Ireland) Limited operating the copper-silver mine at Gortdrum, County Tipperary. The principal products of the Tynagh Mine are lead and zinc concentrates, some of which contain payable quantities of by-product copper and silver. These concentrates are shipped to various European smelters.

The principal products of the Gortdrum Mine are silver bearing copper concentrates and mercury metal, the latter being produced as a by-product. The concentrates are principally shipped to a smelter in Spain and the mercury is sold to various firms.

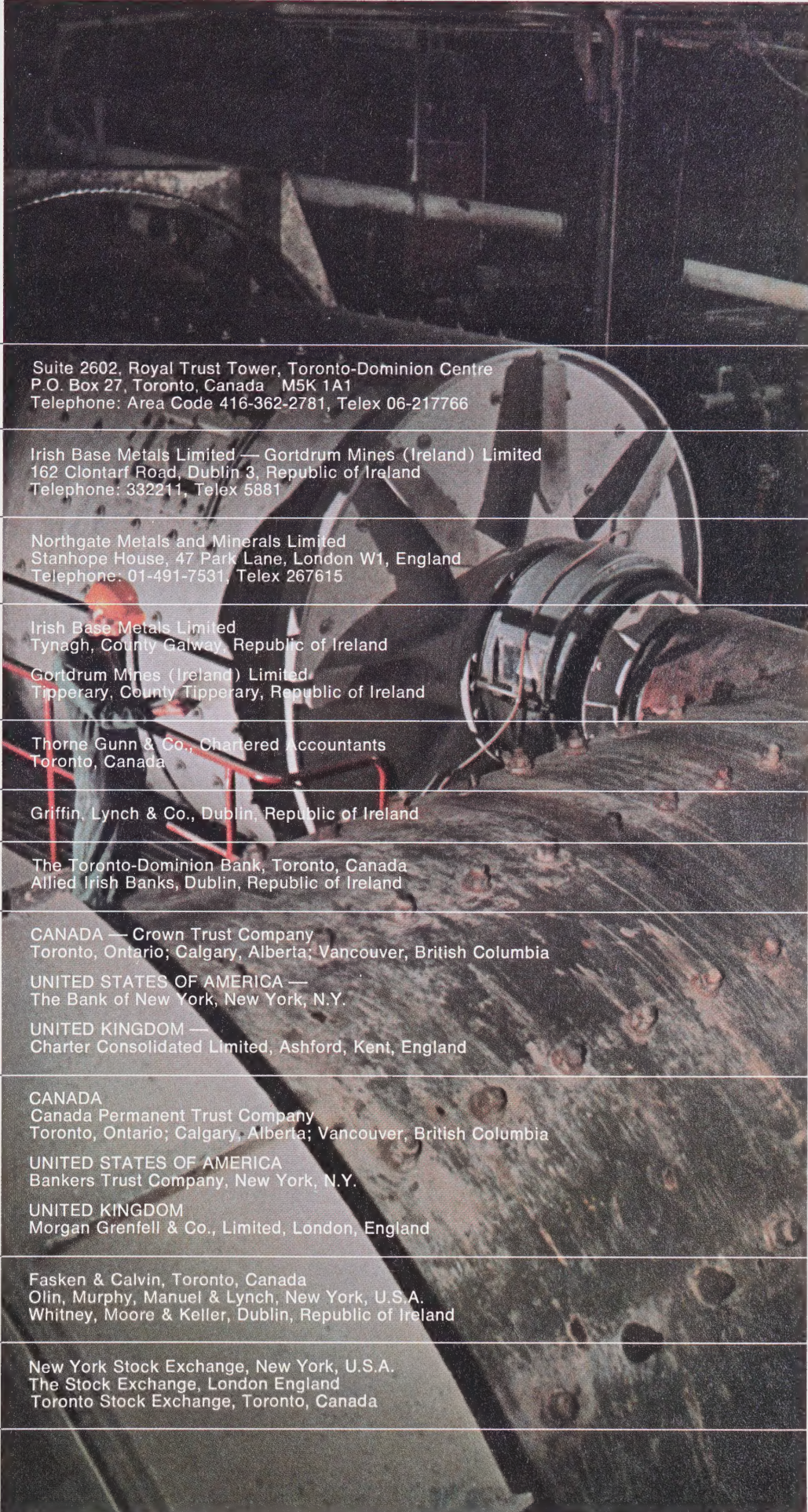
Northgate, through its various wholly owned Irish subsidiary companies, maintains an active exploration program throughout the Republic of Ireland and holds a total of 181 prospecting licences covering an area of approximately 2,500 square miles. In addition it is participating in the exploration of 11 prospecting licences with other companies. The annual budget for exploration in the past few years has been in the order of some \$500,000.

Northgate has a number of affiliated companies, principally Anglo United Development Corporation Limited, Westfield Minerals Limited and Whim Creek Consolidated N.L., which provide a wide exposure to exploration and mine development in other countries in addition to Ireland, notably Australia, Canada and Greenland. In addition to its shareholdings in the foregoing affiliated companies, Northgate has substantial other investments including an approximate 9.8% interest in Tara Exploration and Development Company Limited which is currently developing a large zinc-lead deposit near Navan, County Meath, Ireland, for planned production in 1975.

Northgate and its wholly owned subsidiaries have a total of more than 600 employees, about 95% of which are employed in mining operations and exploration. With nearly 12,000 registered shareholders, the ownership of Northgate is widely spread.



Above: Trackless jumbo drill underground at the Tynagh Mine, County Galway, Ireland. **Below:** Ball mills in the grinding section of main concentrator at the Tynagh Mine.

		
EXECUTIVE AND HEAD OFFICE	Suite 2602, Royal Trust Tower, Toronto-Dominion Centre P.O. Box 27, Toronto, Canada M5K 1A1 Telephone: Area Code 416-362-2781, Telex 06-217766	
DUBLIN OFFICE	Irish Base Metals Limited — Gortdrum Mines (Ireland) Limited 162 Clontarf Road, Dublin 3, Republic of Ireland Telephone: 332211, Telex 5881	
LONDON OFFICE	Northgate Metals and Minerals Limited Stanhope House, 47 Park Lane, London W1, England Telephone: 01-491-7531, Telex 267615	
MINE OFFICES	Irish Base Metals Limited Tynagh, County Galway, Republic of Ireland Gortdrum Mines (Ireland) Limited Tipperary, County Tipperary, Republic of Ireland	
AUDITORS IN CANADA	Thorne Gunn & Co., Chartered Accountants Toronto, Canada	
AUDITORS IN IRELAND	Griffin, Lynch & Co., Dublin, Republic of Ireland	
BANKERS	The Toronto-Dominion Bank, Toronto, Canada Allied Irish Banks, Dublin, Republic of Ireland	
TRANSFER AGENTS	CANADA — Crown Trust Company Toronto, Ontario; Calgary, Alberta; Vancouver, British Columbia UNITED STATES OF AMERICA — The Bank of New York, New York, N.Y. UNITED KINGDOM — Charter Consolidated Limited, Ashford, Kent, England	
REGISTRARS	CANADA Canada Permanent Trust Company Toronto, Ontario; Calgary, Alberta; Vancouver, British Columbia UNITED STATES OF AMERICA Bankers Trust Company, New York, N.Y. UNITED KINGDOM Morgan Grenfell & Co., Limited, London, England	
SOLICITORS	Fasken & Calvin, Toronto, Canada Olin, Murphy, Manuel & Lynch, New York, U.S.A. Whitney, Moore & Keller, Dublin, Republic of Ireland	
STOCK EXCHANGE LISTINGS	New York Stock Exchange, New York, U.S.A. The Stock Exchange, London England Toronto Stock Exchange, Toronto, Canada	

Financial Highlights

	1973	*1972
Net smelter value	\$28,116,000	\$16,715,000
Operating income	14,550,000	7,149,000
Non-operating revenue (net)	337,000	326,000
Interest expense (including bond interest)	249,000	317,000
Cash flow	14,112,000	6,736,000
Per share	\$2.35	\$1.13
Depreciation and amortization	4,175,000	3,675,000
Income before extraordinary item	10,020,000	3,094,000
Per share	\$1.67	\$0.51
Net income after extraordinary item	9,120,000	3,094,000
Per share	\$1.52	\$0.51
AT YEAR END		
Working capital	\$11,957,000	\$ 5,708,000
Ratio of current assets to current liabilities	3.8 to 1	2.4 to 1
Total assets	49,346,000	39,832,000
Shareholders equity	45,077,000	35,896,000
Investments and advances	19,839,000	13,410,000
Less provision for decline in value	1,250,000	1,400,000
	18,589,000	12,010,000
Fixed assets	22,474,000	22,965,000
Less accumulated depreciation	12,332,000	10,765,000
	10,142,000	12,200,000
Shares outstanding	5,992,549	5,981,799
* 1972 figures restated		

Production Highlights

Tynagh Mine	1973	1972
Tons of ore treated	(a) 529,417	(a) 587,233
Production of concentrates		
Tons of lead concentrates	74,400	57,828
Tons of zinc concentrates	22,807	35,872
Tons of bulk concentrates	14,363	39,100
Total tons of concentrates	111,570	132,800
Metals contained in concentrates (b)		
Lead (lbs.)	91.0 million	90.4 million
Zinc (lbs.)	32.8 million	61.6 million
Copper (lbs.)	2.7 million	4.1 million
Silver (ozs.)	1,456,000	1,242,000
Gortdrum Mine		
Tons of ore treated in concentrator	330,226	401,635
Tons of concentrates produced	7,106	11,590
Tons of roasted concentrates produced	7,803	10,871
Flasks of mercury recovered	1,345	1,250
Metals contained in roasted concentrates produced		
Copper (lbs.)	5.1 million	7.7 million
Silver (ozs.)	204,200	282,890
Tons of concentrates sold	13,970	13,332
Flasks of mercury sold	1,300	1,308
Metals contained in concentrates sold (b)		
Copper (lbs.)	9.9 million	9.5 million
Silver (ozs.)	344,000	335,000

NOTES: (a) Includes 379,709 tons of preconcentrated primary sulphide ore in 1973 and 165,011 tons in 1972.
(b) Totals of metals contained in concentrates are subject to smelter deductions.

Directors' Report to Shareholders

The impact of unusually buoyant metal prices, particularly during the last four months of the year when prices for lead, copper and silver surged sharply higher, is evident in the appreciable improvement in the financial results for 1973. Metal prices in the latter part of the year were substantially above those considered in the revised financial forecast published in our semi-annual report.

Financial Results

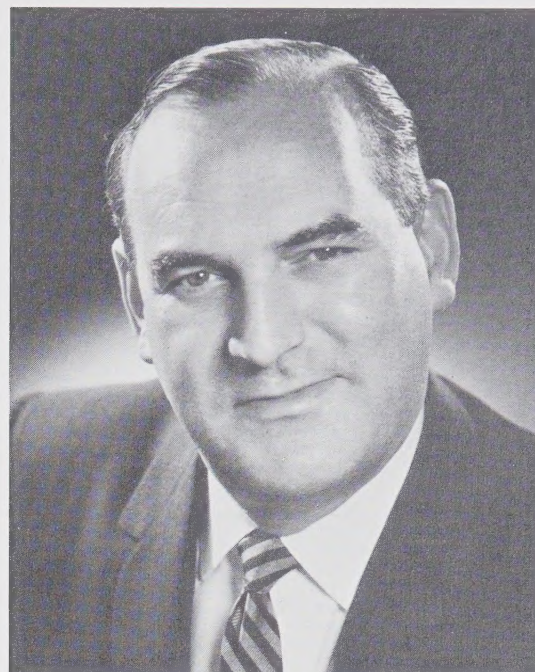
Net revenue from sales of metals and metal concentrates totalled \$28,116,000 compared with \$16,715,000 in 1972. This increase is primarily attributable to the exceptionally high metal prices.

Consolidated net income for the year, after an extraordinary item, was \$9,120,000 equal to \$1.52 per share as compared with a net income in 1972 of \$3,094,000 or \$0.51 per share. The extraordinary item in 1973 was a provision for the decline in the value of investments amounting to \$900,000 or \$0.15 per share. There was no comparable item in 1972.

Cash flow was \$14,112,000 equal to \$2.35 per issued share up from \$6,736,000 or \$1.13 per share in 1972.

The consolidated Irish subsidiary companies' income from mining operations under present laws is exempt from Irish income tax for 20 years from the dates of commencement of production. However, the Irish Government by announcements on September 25 and October 19, 1973 indicated its intention to withdraw this exemption from April 1974. Details of the proposed amending legislation have not yet been made available.

The sharp uptrend of lead, copper and silver prices experienced during 1973 has continued, establishing all-time highs during February of the current year. London Metal Exchange prices for zinc have similarly experienced sharp advances. However, the L.M.E. quotations for zinc are not relevant to your Company's revenue since zinc concentrate sales are based on the G.O.B. European producer price which was increased from £250 to £300 per metric ton during November, the latter being equivalent to approximately 32¢ per lb. U.S.



Patrick J. Hughes
President of Northgate Exploration Limited

The remarkable increases in lead, copper and silver prices during 1973 and continuing into 1974 are due to a number of factors, including inflation, currency hedging and reputed short covering of positions established a few months earlier when it was anticipated that prices would react from these peak levels.

As long as these influences persist it is impossible to anticipate the probable price levels that would prevail under normal supply-demand circumstances.

The following table shows the average metal prices received from sales of metals and metal concentrates during 1973 with comparative figures for 1972 as well as the average quoted prices for 1973. Prices are based on London Metal Exchange quotations for lead, copper and silver, and the G.O.B. European Producer price for zinc, all expressed in equivalent U.S. funds:

		Quoted Average	
	1973	1972	1973
Tynagh Mine			
Lead — per lb.	21.6¢	13.9¢	19.4¢
Zinc — per lb.	24.4¢	17.6¢	24.4¢
Copper — per lb.	81.4¢	48.9¢	84.8¢
Silver — per oz.	\$2.92	\$1.72	\$2.54
Gortdrum Mine			
Copper — per lb.	80.7¢	48.1¢	
Silver — per oz.	\$2.69	\$1.69	
Mercury — per flask	\$251	\$196	

The different prices received for copper and silver by the Tynagh Mine and the Gortdrum Mine is a factor of the different timing of concentrate shipments from these two mines and the fact that the prices of these two metals are often subject to erratic short term variations.

The table on page 4 summarizes the 1973 financial and production highlights with comparative figures for 1972. A detailed five year comparative summary of financial highlights and production statistics appears on pages 30 and 31.



The scenes alongside depict the on-going programs of environmental control improvements and conservation measures at the Tynagh Mine. Upper photo shows the contouring of the waste dumps preparatory to hydraulic fertilizing and seeding — the latter operation is in process in the picture below.

Operations

Tynagh Mine

Although the ore treatment rate at the Tynagh Mine was nearly 20% below prediction, concentrate production was down only 10%. This was due to a higher proportion of secondary ore being treated than was forecasted, resulting from the reclassification of some pit primary sulphide ore to secondary ore which was of better than average grade of metal content.

Mining of secondary ores was completed during the first half of the year and at year end only 21,000 tons of pit primary sulphide ore remained to be mined and all subsequent production ore will come from underground. With the completion of the pit primary ore early in 1974 it is expected that more normal operations will prevail which will enable a higher treatment rate this year. However, due to the lower grade of the underground ore, concentrate production will decline to an estimated 96,000 tons.

Gortdrum Mine

During most of the year the Gortdrum Mine concentrator was operating below capacity, the continuation of the planned reduction initiated in 1972 to align concentrate output with sales. The seven days a week operating schedule was resumed during December of 1973 and is planned to continue at this higher rate in the current year. The lower volume of ore treated was reflected in the higher unit costs.

With concentrates on hand at the end of the year amounting to less than 2,000 tons, a normal balance between production and sales has been achieved.

Under the present schedule of operations based on the currently estimated extractable ore reserves down to and including Bench 12, operations at the Gortdrum Mine will be concluded at the end of 1975.

However, every effort will be made to prolong the life of this mine, including current investigations of the feasibility of mining the additional ore grade material below Bench 12 by conventional underground mining methods, as well as the studies which are presently in progress for the treatment of the appreciable tonnage of stockpiled marginal (sub-ore) material. Moreover, exploration in the mine area will be intensified to further implement these plans for extending the operating life of the mine beyond 1975.

Operations at both the Tynagh and Gortdrum mines are commented upon in greater details on pages 11 to 15 of this report.

Forecast of 1974 Operations

As noted previously, the bulk of the ore to be mined at the Tynagh Mine during 1974 will come from underground. The currently projected operating schedule for

1974 envisages the mining of approximately 805,000 tons of primary ore including the 21,000 tons remaining in the open pit. After preconcentration in the dense media plant, total feed of the upgraded product to the concentrator will be in the order of 560,000 to 585,000 tons, depending upon the rejection rate of the dense media plant. This compares with a total of 529,417 tons treated in the concentrator during 1973.

Anticipated concentrate production is approximately 96,000 tons of almost equal proportions of lead and zinc concentrates which compares with 111,570 tons produced in 1973.

Forecast production at the Gortdrum Mine for 1974 from the expected treatment of approximately 516,000 tons of ore is approximately 12,600 tons of concentrates. It is anticipated that concentrate sales during the coming year will be approximately 13,700 tons.

Exploration

During 1973 the exploration climate in the Republic of Ireland was adversely affected by uncertainties concerning the Irish Government's fiscal policy with respect to the mining industry. Under present laws, income from new mining operations coming into production prior to April 1986 is exempt from Irish income taxes for 20 years from the date of commencement of production.

However, the Irish Government by announcements on September 25 and October 19, 1973 indicated its intention to withdraw this exemption from April 1974. Since then, the Minister for Finance has held a series of discussions on the matter with representatives of the Irish mining industry and other interested groups but details of the Government's final proposals have not yet been made available.

Uncertainties also arose in 1973 with regard to the Irish Government's ability to compulsorily acquire minerals which are privately owned. These uncertainties resulted from oral judgements delivered in April 1973 in Irish legal actions which questioned the constitutionality of Section 14 (Sub-Section 1) of the Minerals' Development Act, 1940 of the Republic of Ireland.

This Section of the Minerals' Development Act, 1940 provides for the compulsory acquisition by the State of privately owned minerals in the Republic of Ireland where the minerals are not being worked or not being worked efficiently (about one-third of the mineral rights in the Republic of Ireland are privately owned). The 1940 Act also provides for the granting of prospecting licences to companies or individuals who establish to the satisfaction of the State that they will carry out an effective prospecting program in the area covered by the licence. If a commercially mineable deposit is discovered, the State can issue a compulsory minerals' acquisition order covering any privately owned mineral rights that may be necessary for the efficient or convenient exploitation of the deposit if the State determines, amongst other things, that it is desirable and in the public interest that the working of the deposit should be controlled by the State.

The judgements delivered in April 1973 in the Irish legal actions referred to above, found Section 14 (Sub-Section 1) of the 1940 Act constitutional. However, the actions also questioned the validity of the Minerals' Acquisition Order, 1971 made purporting to compulsorily acquire the minerals comprising the zinc-lead orebody discovered by Tara Exploration and Development Company Limited near Navan, County Meath, which were not in the State's ownership (the portion of the Navan orebody affected by the proceedings represents approximately 12.7% of the 77 million tons of the Navan orebody as presently estimated by Tara). The judgements found the Order invalid. The Minister for Industry and Commerce appealed these judgements and on March 4, 1974 the Supreme Court delivered oral judgements sustaining the High Court's finding that the Minerals' Acquisition Order, 1971 was invalid.

The continuity of exploration in Ireland on the scale required to ensure a reasonable possibility of expanding Ireland's known mineral reserves, must obviously depend on the elimination and resolution of these uncertainties. However, your Company's 1974 exploration program in Ireland will continue at a high level of activity.

During 1973 active exploration programs were continued on the State Mining Leases at both the Tynagh and Gortdrum mines. Mineralization was located on each of the leases but to date is of low grade and at present is unlikely to add to known reserves.

Your Company also continued its exploration program outside the mining lease areas. The number of prospecting licences held by your Company through its subsidiaries remained at 181 (approximately 2,500 square miles) and applications have been made for a further 400 square miles. Participation in the exploration of 11 prospecting licences with other companies was maintained.

The exploration program involved reconnaissance and detailed geochemical-geophysical surveys and extensive diamond drilling. Northwest of the Tynagh Mine the high grade float referred to in last year's Annual Report was followed up by geophysics and diamond drilling. The source of the mineralization was found to be a narrow, steeply dipping fracture zone in the reef limestone. The grade of the mineralization within the zone appears to be highly erratic.

In the Navan area, a surface exploration program gave indications of mineralization. Follow-up diamond drilling has confirmed the presence of mineralization but results to date are inconclusive and considerably more diamond drilling will be required to adequately test the area. Current activities are concentrated on the basal Carboniferous rocks where they come in contact with older rocks. Work so far has shown that the general licence areas (totalling some 56 square miles) are geologically complex and will require an intensive exploration program. Further diamond drilling is planned.

During the year, your Company — through its Spanish subsidiary, Imebesa — entered into an agreement with Phelps Dodge Europa Limited, whereby the latter company agreed to carry out an exploration program over an

area of approximately 41 square miles in northeastern Spain. This ground is currently held by Imebesa but Phelps Dodge Europa Limited has the right to earn a majority interest by its exploration expenditures.

In Canada your Company, in a joint venture with its associate Westfield Minerals Limited, initiated a reconnaissance program in the Province of Nova Scotia where tracts covering an area of approximately 87 square miles have been acquired and preliminary work is scheduled to commence as soon as weather permits. Your Company retains a 40% participating interest in this project.

Affiliated Companies

The activities and interests of our principal affiliated companies — **Westfield Minerals Limited, Anglo United Development Corporation Limited and Whim Creek Consolidated N.L.** — complement those of your Company by providing a wide exposure to exploration and mine development in other countries in addition to Ireland, notably Australia, Canada and Greenland.

A significant development during the year was the start up of production at the lead-zinc mine in West Greenland in which Westfield has a participating interest, and the recently announced decision by Whim Creek to commence a comprehensive study of the feasibility of an operation or operations with respect to three separate properties where copper, copper-zinc and copper-nickel deposits of varying moderate tonnages have been outlined to date.

In addition, with respect to the Mons Cupri properties of Whim Creek which are under option to Texasgulf's subsidiary, Australian Inland Exploration Inc., the latter has announced that studies are in progress for copper recovery by leaching and that plans are being made to bring Mons Cupri into production at a rate of 1,500 to 2,000 tons of ore per day. Whim Creek holds a non-contributory interest in the Mons Cupri properties amounting to 31⅓%.

The current and planned activities of principal interest with respect to these three main affiliated companies are described in brief outline on pages 16 to 20 of this report.

Other Investments

In addition to shareholdings in associated companies, principally Westfield Minerals Limited, Anglo United Development Corporation Limited and Whim Creek Consolidated N.L., your Company has substantial other investments including 129,032 shares of W. R. Grace & Co. and 630,441 shares of Tara Exploration and Development Company Limited.

The Tara shares are carried in the accounts at a cost of \$9,205,000 and a quoted market value at year end of \$7,881,000. Subsequently, on February 15, 1974 Cominco Ltd. made a tender offer to Tara shareholders conditionally bidding for a large block of shares at the price of \$25.00 per share.

At a subsequent Board meeting, independent directors of Northgate formally rejected the February 15th offer made by Cominco. As a consequence of this tender offer, the market price for Tara shares advanced sharply and as a result the value of your Company's investment in Tara at recent quotations increased to approximately \$15.7 million.

Tara is currently developing a large zinc-lead deposit near Navan, County Meath, Ireland, for planned production in 1975.

Dividends

Your Directors are keenly aware of the desirability of resuming dividend payments to shareholders. Dividend payments were initiated in 1968 and the last payment of U.S.\$0.25 per share was made on July 16, 1971 to shareholders of record on June 30, 1971. Dividend payments to the latter date totalled approximately \$10 million.

The rapid deterioration of earnings subsequent to the declaration of the 1971 dividend with a recorded net loss of \$1,353,000 for that year and the drop in working capital to \$128,000 at year end 1971, together with on-going substantial financial commitments in the preparation of the underground mine at Tynagh for production, necessarily precluded consideration of further dividend payments until circumstances materially improved.

Continuing capital expenditures at the Tynagh and Gortdrum Mines amounting to \$1.7 million in 1972 and additional commitments of more than \$400,000 at the end of 1972, as well as other financial undertakings including investments and the necessity of maintaining adequate cash resources, obliged your Directors to defer action on dividend payments.

In view of the substantial improvement in earnings and working capital position, the Directors have declared a semi-annual dividend of U.S.\$0.25 per share together with an extra dividend of U.S.\$0.15 per share. Both dividends in the aggregate amount of U.S.\$0.40 per share will be payable on April 15, 1974 to shareholders of record April 1, 1974.

General

On January 25, 1974 your Company offered, subject to confirmation by shareholders of Northgate and Westfield Minerals Limited, to purchase from Westfield 220,000 shares of Vestgron Mines Limited and 1,250,000 shares of Whim Creek Consolidated N.L. in consideration for \$350,000 in cash and 800,000 treasury shares of Northgate.

If this offer is accepted and approved, your Company would have a direct interest of approximately 5% in Vestgron and, owing to its ownership of approximately 45% of Westfield, a direct and indirect interest in approximately 400,000 shares equal to about 9.5% of the issued shares of Vestgron. Its direct interest in Whim Creek would increase to approximately 32% compared with your Company's present ownership of approximately 20.4%. Similarly, owing to its equity interest in Westfield, your

Company's beneficial ownership in Whim Creek would increase to approximately 42%.

The Board of Directors is pleased to announce the appointment on May 4, 1973 of Mr. Michael Stuart as Vice-President of Operations. Mr. Stuart was formerly Mine Manager of Gortdrum Mines (Ireland) Limited and the latter position has been filled with the appointment of Mr. Derick Morris, also effective on May 4, 1973.

The Board of Directors acknowledge the loyal and efficient efforts of our employees as well as the continued support of the shareholders during a year of considerable uncertainties.

On behalf of the Board of Directors,

Pat. J. Hughes.

March 20, 1974.

President

Headframe and hoist for the access shaft at the Navan Mine of Tara Mines Limited. This initial shaft has now been sunk to within 90% of its objective depth at 1,113 feet.





REVIEW OF OPERATIONS

TYNAGH MINE

During the year a total of 682,734 tons of ore was mined including 533,026 tons of primary sulphide ore which was preconcentrated in the dense media plant and 149,708 tons of secondary ores. This compares with 661,312 tons mined in 1972 of which 239,090 tons were primary sulphide ore and the remainder consisting of a variety of secondary ores totalling 422,222 tons.

Ore feed to the concentrator during the year totalled 529,417 tons including 379,709 tons of preconcentrated primary sulphide ore from the dense media plant. The comparative figures for 1972 were a total of 587,233 tons of which 165,011 tons were preconcentrated primary sulphide ore from the dense media plant. All future ore feed to the concentrator will be preconcentrated product from the dense media plant.

Of the total 533,026 tons of primary sulphide ore initially treated in the dense media plant during 1973 with the resultant preconcentrated product of 379,709 tons, 297,950 tons were from the underground Zone II area. The balance came from the pit primary sulphide reserves. Mining of all scheduled secondary ores was completed during the first half of the year and at year end only 21,000 tons of pit primary sulphide ore remained, the latter scheduled for mining and treatment during the early part of 1974.

Underground mine development and long hole drilling were stepped up during the year to meet the increased production requirements, as a larger proportion of underground ore was treated. Some mechanical problems with the crushing and ore handling system were encountered after the mine switched to treating all primary ore and resulted in a shortfall in tonnage treated. However, these problems are being resolved.

The following is a tabulation of the ore categories and their respective metal content which were treated in the concentrator during 1973:

Type	Tons of Ore	Lead %	Zinc %	Copper %	Silver ozs/ton
Sulphide (a)	379,709	7.6	4.7	0.8	3.4
Mixed oxide	126,271	16.4	5.3	0.8	3.6
Lead oxide	23,437	12.9	3.4	1.2	4.6
Total	529,417				

(a) Preconcentrated

The comparative ore treatment statistics for 1972 are:

Type	Tons of Ore	Lead %	Zinc %	Copper %	Silver ozs/ton
Sulphide (a)	165,011	6.8	5.5	0.8	2.9
Lead oxide	140,366	15.6	3.6	0.7	4.4
Mixed oxide	121,199	17.2	11.0	0.2	3.8
Zinc oxide	160,657	3.0	17.4	—	—
Total	587,233				

The following is a summary of concentrate production for 1973 with comparative figures for 1972:

	1973	1972
Tons of lead concentrates	74,400	57,828
Tons of zinc concentrate	22,807	35,872(b)
Tons of bulk concentrate	14,363	39,100
Totals	111,570	132,800

(b) Includes 21,421 tons of zinc oxide calcine

With the completion of treatment of the secondary ores, the mill circuits which had been twinned to simultaneously treat both secondary and primary ore were converted at mid-year to treat primary ore in both circuits. This changeover of the concentrator was a contributory factor to the shortfall of the treatment rate during 1973.

Although the average lead grade of the pit primary ore was moderately below the anticipated grade this was largely due to the reclassification of a considerable portion of this material to secondary ore, the latter — as shown in tabulation of ore categories treated — was above anticipated grade of metal content.

Metallurgical recoveries, with the exception of zinc, were generally consistent with prediction. Zinc recoveries improved during the latter part of the year reaching 73.2% during December. It is expected that an average recovery of 70% will be achieved during 1974 under more normal operating conditions and with a better balance of ore feed to the concentrator. The lower than anticipated zinc recoveries was a factor additional to those above in the shortfall in predicted zinc concentrate production.

The approximate totals of metals contained in concentrates produced during 1973 were 91.0 million pounds of lead, 32.8 million pounds of zinc, 2.7 million pounds of copper and 1,456,000 ounces of silver. These figures are subject to smelter deduction and include some non-payable metals in different concentrates.

Direct operating costs per ton of ore treated in the concentrator during 1973 averaged \$11.61 against \$8.57 per ton on the same basis in 1972. However, these cost figures are not directly comparative as the unit increase is largely due to the higher proportion of primary sulphide ore being mined and preconcentrated in the dense media plant during 1973 totalling 533,026 tons (78% of total) versus 239,090 tons (36% of total) in 1972.

Calculated on the basis of total tons mined, direct operating costs were equal to \$9.00 per ton compared with \$7.61 per ton in 1972.

Metallurgical recoveries from the various ore categories treated during the year were:

	Recovery			
	Lead %	Zinc %	Copper %	Silver %
Sulphide (primary)	87.0	59.9	77.6	86.8
Lead oxide	84.7	33.0	88.1	85.4
Mixed oxide	85.2	37.2	85.5	85.4

Since mid-1973 all ore is preconcentrated in the dense media plant prior to treatment in the concentrator. Considerable operating experience was gained in 1973, demonstrating — among other things — that the underground primary sulphide ore is more amenable to treatment than the pit primary ore. With the latter to be phased out early in 1974, efficiency of the now fully integrated treatment process is expected to improve.

Production Schedule for 1974

Current operating schedule projected for 1974 assumes the mining of approximately 805,000 tons of primary sulphide ore grading moderately above reserve average. After preconcentration in the dense media plant, the upgraded product to the concentrator of from 560,000 to 585,000 tons is expected to yield approximately 96,000 tons of concentrates.

Of this total projected concentrate production, approximately 49,000 tons will be lead concentrates with payable quantities of copper and silver, and approximately 47,000 tons will be zinc concentrates. It is assumed that payable quantities of silver in the lead concentrates will total upwards of 0.7 million ounces in 1974.

ORE RESERVES (At December 31, 1973)

Open Pit Reserves — Zone I — Primary Sulphides

Tons	Grade			
	Lead %	Zinc %	Copper %	Silver ozs/ton
21,000	5.22	2.54	0.10	2.95

Following a detailed re-appraisal carried out at the end of the year as more specific information became available for the main ore block as a result of mining and stope development, and taking into consideration the terms of the 1974 smelter contracts, the ore reserves for Zone II have been recalculated, including 5% dilution:

Underground Ore Reserves — Zone II — Primary Sulphides

Tons	Grade			
	Lead %	Zinc %	Copper %	Silver ozs/ton
3,600,000	4.11	3.52	0.32	1.46

Further consideration was given to the material totalling 700,000 tons classified "B" in the stated ore reserves at the end of 1972 grading 2.69% lead, 0.16% zinc, 0.61% copper and 1.40 ounces of silver per ton, and despite the increase in metal prices, it is still considered doubtful that this material could be mined at a profit under the terms of smelter contracts presently in effect. However, sales of concentrates that might be produced from this material would be governed by new contracts, the terms of which have not yet been negotiated, and the profitability of mining this material would depend to a considerable extent on these terms and metal prices prevailing at that time.

Underground at the Tynagh Mine.



Potential Ore — Zone III

As no further work was carried out in the last year, the material in this zone cannot presently be classified as ore. Analyses of previous work indicate the following approximate tonnage and grade of mineralized material that probably could be mined at a profit if current conditions prevail:

Tons	Grade			
	Lead %	Zinc %	Copper %	Silver ozs/ton
*1,850,000	3.40	4.60	0.28	0.64

* Includes 10% dilution.

Exploration — Tynagh Mine Area

The Tynagh Mine Area encompasses approximately 15 square miles along the North Tynagh Fault.

During 1973 the intensive search for further ore reserves was maintained. The main effort was directed towards the continuation of the North Tynagh Fault east of ore Zone III. The program consisted of geological mapping, detailed geochemistry, induced polarization, gravity surveys and diamond drilling.

As a result of the reconnaissance surveys a diamond drilling program was carried out. Significant mineralization was encountered in some of the holes but this is not likely to add any substantial tonnage to the known ore reserves.

Widespread, weak geochemistry east of the mine appears to be related to low grade mineralization in the footwall rocks of the North Tynagh Fault. Geophysical anomalies coincident or closely related to the fault have been shown by the drilling to be caused by pyritized calp muds and dolomite. Minor lead-zinc values are also present but these do not reach economic grades.

During 1974 the exploration program will be maintained at a high level of activity and greater emphasis will be given to diamond drilling. All rocks equivalent in age to the micrites containing the Tynagh ores will be given close attention.

GORTDRUM MINE

Operations at the concentrating plant throughout most of the year were on a five day work week in order to bring production into balance with concentrate marketing, with the result that tonnage treated in the concentrator and concentrate production was at a somewhat reduced rate during 1973. The seven days a week operating schedule was resumed in December and it is planned to continue at the latter rate during 1974.

While portions of the mineable ore in the open pit reserves and in stockpiles contain varying amounts of mercury which requires that certain of the concentrates produced must then be roasted in the mercury plant to

recover the mercury and at the same time reduce the mercury content of the concentrates to generally acceptable levels for marketing, the amount to be treated is now on a diminishing scale.

Current projected treatment schedules indicate that approximately half of the concentrates produced in the concentrator will require roasting in the mercury plant during 1974 and this proportion will decline further in 1975.

Although present schedules of mining operations based on the stated tonnages of ore available down to and including Bench 12 together with certain of the stockpiled ore grade material would indicate the completion of mining and milling at the end of 1975, a concerted effort will be made to extend the operating life of the mine beyond this period.

In furtherance of this objective an examination is now being made of the possibility of treating concentrates from the remaining stockpiled sub-ore material utilizing a solution process. This would involve the shipping of concentrates to a European smelting firm which is currently engaged in pilot plant tests on the feasibility of designing a plant capable of refining such concentrates.

Detailed studies are also currently in progress of the capital and operating costs involved in mining by conventional underground methods of the known tonnages of ore grade material below Bench 12. The feasibility of mining this additional ore will also be governed by metal prices prevailing at the time of scheduled operations.

Production

The following are the pertinent operating and production data for the year together with comparative figures for 1972:

Concentrator		
	1973	1972
Tons of ore milled	330,226	401,635
Grade:		
Copper — %	1.14	1.26
Silver — ozs/ton	0.80	0.93
Metallurgical recoveries:		
Copper	80.3%	86.1%
Silver	79.5%	83.5%
Concentrates produced — tons	7,106	11,590
Grade:		
Copper — %	42.53	37.50
Silver — ozs/ton	29.52	26.81
Mercury Plant		
Roasted concentrates produced — tons	7,803	10,871
Grade:		
Copper — %	33.03	34.34
Silver — ozs/ton	26.17	26.03
Mercury recovered — flasks	1,345	1,250



Foreground shows the new office and changehouse complex at the Tynagh Mine during the period of major construction in 1971. Shaft headframe and hoist building, coarse ore storage bin and dense media separation plant are shown from left to right.

Direct operating costs per ton of ore treated, which includes mining, milling, roasting, mine services, mine administration, transportation and loading of concentrates, head office costs in Ireland and exploration costs in the mine area, amounted to \$11.21 which compares with \$7.97 per ton in 1972. This increase is principally attributable to the lower rate of mining and milling.

Mining

A total of 283,100 tons of ore averaging 1.17% copper was mined during the year of which 192,800 tons grading 1.27% copper were delivered to the crusher for treatment in the concentrator and 90,300 tons grading 0.97% copper were placed in stockpiles. The balance of the plant feed amounting to 130,400 tons averaging 0.95% copper was reclaimed from stockpiles.

Due to a re-design on Benches 11 and 12 to provide a second access ramp in part of the west end and also to small blocks of ore that could not be mined on Benches 9 and 10, there was a net depletion of 21,400 tons grading 1.35% copper which is reflected in the ore reserve calculation at December 31, 1973.

Marketing of Metals and Concentrates

During the year 13,970 tons of concentrates were shipped to smelters compared with 13,322 in 1972. The proceeds from concentrates sold during 1973 was \$7,119,949 and the costs of producing these concentrates was \$5,393,094.

A total of 1,300 flasks of mercury (76 lbs. per flask) was sold during 1973 the net proceeds of which amounted to \$324,049. The cost of producing the mercury sold amounted to \$543,576.

The appreciable increase in copper and silver prices during the year as well as the improved grade of concentrates sold resulted in a net profit for Gortdrum Mines (Ireland) Limited amounting to \$1,324,000 in 1973 which compares with a net loss, similarly calculated after Government royalty, amortization and other charges, of \$879,000 the previous year.

Metals contained in concentrates shipped during the year amounted to approximately 9.9 million pounds of copper and 344,000 ounces of silver.

Ore Reserves

Estimated assured ore reserves in the mine open pit down to and including Bench No. 12, at December 31, 1973 are as follows:

Tons	Grade	
	Copper %	Silver ozs/ton
634,000	1.60	1.11

Note:

There is further ore grade material located below Bench No. 12, which is not presently scheduled for production and not included in ore reserves. The feasibility of eventually mining this material is being studied. Among other considerations, the price of metals and mining costs will be further determining factors.

Stockpiles at December 31, 1973

	Tons	Copper
Surge stockpile	2,300	1.36%
Stockpile No. 1 (sub-ore)	56,100	0.51%
Stockpile No. 2 (sub-ore)	509,400	0.55%
Stockpile No. 2a (sub-ore)	792,400	0.44%
Stockpile No. 3 (ore)	15,800	0.59%
Stockpile No. 3a (sub-ore)	38,600	0.56%
Stockpile No. 3b (ore)	12,500	1.35%
Stockpile No. 4 (ore)	1,300	0.66%

Under present marketing conditions much of the material classified above as sub-ore could not be economically treated.

Mine Area Exploration

Exploration continued on the Gortdrum Mine area during 1973, including 3,466 feet of diamond drilling, 585 feet of percussion drilling, 4.9 line miles of geophysical (I.P.) surveying and the collection of approximately 1,700 soil samples for geochemical analysis.

Further diamond drilling in the area northwest of the mine extended the zone of weak lead-zinc mineralization located last year. Of the four holes drilled, two intersected significant amounts of mineralization. The best hole, sited approximately one mile southwest of the drilling reported in the 1972 Annual Report, returned 2.73 combined lead-zinc over 19.5 feet including a section of 7.66 feet at 4.45% combined, at a vertical depth of 390 feet. Further drilling in this area is planned.

Investigation is also continuing of a further encouraging area east of the mine where recent detailed work has delineated a strong lead-zinc geochemical (soil) anomaly with an associated I.P. anomaly.



Above: Concentrator complex and mercury plant at the Gortdrum Mine. **Below:** Control panel in the mercury extraction plant. This plant and ancillaries was constructed at a cost of \$1.5 million.



AFFILIATED COMPANIES

ANGLO UNITED DEVELOPMENT CORPORATION LIMITED

The Company's principal current activities are in the Republic of Ireland where it has interests in a total of 74 prospecting licences including the following:

(a) Fifty three licences which are the subject of a working option agreement dated July 1, 1971 with La Societe Miniere et Metallurgique de Penarroya (Penarroya). Under the agreement, Anglo United has undertaken to spend not less than \$100,000 in exploration on the licences prior to October 31, 1972. The option is renewable for three successive periods of one year to October 31, 1975 subject to expenditures being made during each yearly period in the greater of U.S.\$100,000 or the amount required to maintain the licences in good standing.

During the period from July 1, 1971 to the fiscal year ended October 31, 1973 Anglo United incurred expenses with respect to this working option in the amount of U.S.\$495,470.

(b) One licence which is wholly owned by Anglo United and 20 further licences held jointly with other companies with varying degrees of percentage interests, principally with Tara Prospecting Limited and Northgate's wholly owned subsidiaries. Twelve of the latter licences in the Waterford Area have been optioned to Amax Exploration of U.K. Inc.

In Canada, Anglo United has various mineral rights in the Northwest Territories including an undeveloped 20-claim gold property in the Yellowknife Area where drilling completed several years ago totalling in excess of 16,000 feet indicated three gold-bearing zones averaging 0.56 oz. gold per ton across an average width of 4.0 feet for a combined length of approximately 980 feet. The Company has recently completed a study of this property and plans a follow-up program of diamond drilling to be carried out during the 1974 field season. In addition to this main gold property, the Company has a 75% interest in a large group of mining claims in the Camsell Lake District, plus varying modest interests in petroleum acreage in Western Canada.

Activities 1972-73 Fiscal Year

Anglo United's principal activities during the 1972-73 fiscal year were concentrated on the continuing exploration of the 53 prospecting licences under option from Penarroya. This consisted of geochemical and geophysical surveying plus geological mapping on several licences, particularly with respect to the three Mallow licences in County Cork (441, 1366 and 1399) and the group of five licences in County Wexford.

Application has been made for other prospecting licences in Ireland, wholly on behalf of Anglo United, and granting of these licences is now pending.

The principal development during the year was the discovery of a copper-silver deposit on Mallow licence 1399, County Cork, where a total of 31 widely spaced holes on incomplete cross-section at 200-ft. intervals along a strike length of approximately 1,200 feet has indicated the possibility of the occurrence in the order of 3 to 4 million tons with an indicated average grade of drilling intersections of 0.69% copper and 0.86 ounce of silver per ton.

It is noted that this estimate of inferred or possible tonnages is tentative and indicates only an approximate order of magnitude of the area of mineralization and will

require additional detailed drilling to ascertain the continuity between widely spaced holes. The further drilling that is planned for this deposit provides the possibility of confirming the foregoing estimate and the potential for additional tonnage.

Further drilling is planned for the Wexford licences where previous drilling in 1972 intersected zinc mineralization at depths to 750 feet.

Anglo United and its wholly owned investment subsidiary hold a block of 246,333 shares of Northgate Exploration Limited. Working capital at October 31, 1973 (exclusive of investments) was \$387,109.

At December 31, 1973 Northgate's interest in Anglo United was 1,089,500 shares equal to approximately 17% of the issued and outstanding capital.

TARA EXPLORATION AND DEVELOPMENT COMPANY LIMITED

Tara, through its wholly owned Irish subsidiary, Tara Mines Limited, is currently developing the large zinc-lead deposit near Navan, County Meath, Ireland, for planned production in 1975. The total capital cost of the project was stated in the 1972 Tara annual report to be approximately \$85 million.

Site clearance and preparation for the construction program commenced during January, 1973. Excellent progress is being made in the current phase of the underground development work, initially comprising the sinking of a three-compartment access shaft and driving of an 18' x 20' service ramp or tunnel, declined at approximately 20%. At March 1, 1974 the access shaft had been completed to a depth of 959 feet toward its objective of 1,113 feet. The service ramp and associated tunnel work have



Above: Underground worker in the decline tunnel at Tara's zinc-lead deposit, Navan, Ireland.
Alongside: Portal for the service ramp at the Navan zinc-lead mine. The ramp and associated tunnel work have now been driven for a combined distance in excess of 4,000 feet.

now been driven for a combined distance of 4,094 feet. Trackless load-haul-dump vehicles will be utilized and primary crushing of ore will take place underground. Ore will be hoisted from the mine through a production shaft from a depth of about 1,000 feet.

Construction of the main treatment facilities is scheduled to commence during April 1974. The concentrator complex will have an initial design capacity of 7,500 tons per day producing zinc concentrates assaying 56% zinc, and lead concentrates assaying 62% lead plus payable silver. Metallurgical recoveries are estimated at 90% for zinc and 82% for lead. The annual output when the mine is in full production will amount to 420,000 metric tons of concentrates containing some 240,000 metric tons of zinc and lead in the approximate ratio of 5:1.

On the basis of projected capacity operations, the Navan mine would be the largest zinc producer in Europe and clearly rank among the leading producers throughout the world. Arrangements for the sale of concentrates from the Navan mine have been made with a consortium of European smelters. The marketing arrangements made do not preclude the eventual sale of zinc concentrates to an Irish refinery. The agreement made with Noranda Mines Limited in January, 1974 is based on these market arrangements.

Under the agreement, Noranda will arrange for \$6 million in interim financing to supplement Tara's financial

resources and facilitate continued development of the Navan Mine, pending finalization of current discussions regarding the issuance of a State Mining Lease by the Irish Government which is a prerequisite for the senior financing.

In part consideration of these interim financing arrangements, Noranda will receive 5-year warrants to purchase a total of 100,000 Tara treasury shares at a price of \$16 per share. In addition, Northgate, Tara and Noranda have agreed to undertake a joint study to determine the commercial feasibility of constructing and operating an electrolytic zinc reduction plant in Ireland to treat Tara and possibly other zinc concentrates. If as a result of this study it is determined that a plant will be constructed, Noranda will have a 50% equity interest in the plant and the Tara-Northgate Group will hold the remaining equity interest.

Noranda will manage the design, construction and operation of the plant and the marketing of all of the plant's production.

At December 31, 1973 Northgate held 630,441 shares equal to approximately 9.8% of the issued and outstanding capital of Tara. On the basis of market quotations of March 6, 1974 (Toronto Stock Exchange) the Tara shares owned by Northgate had a quoted value of \$15.7 million.



WESTFIELD MINERALS LIMITED

Both directly, and indirectly through subsidiary and affiliated companies, Westfield has widespread exploration interests in Canada and Australia, and through its shareholding in Vestgron Mines Limited is participating in a producing lead-zinc-silver mine in West Greenland. Other principal assets of Westfield include the Coniaurum Property in the Timmins Area of Ontario which is, in part, leased to Pamour Porcupine Mines Limited under a mining and royalty arrangement.

Coniaurum Property

Westfield owns the mineral rights and part of the surface rights of the former gold producing Coniaurum Property adjoining the McIntyre Mine in Tisdale Twp., Ontario. The McIntyre Mine together with its 3,000 ton capacity gold mill and the 2,000 ton capacity copper circuit was recently purchased by Pamour Porcupine Mines Limited.

Through a series of agreements originally made with McIntyre and assigned to Pamour effective November 27, 1973, a number of claims comprising about half of Westfield's Coniaurum Property are leased under a mining and royalty arrangement to Pamour. These agreements include arrangements covering the mining of essentially copper ore with accompanying modest payable quantities of gold, which were further amended by a new agreement dated October 1, 1973 which is more specifically related to the mining of gold ore.

The agreements provide for basic royalty payments on the tons of ore milled plus escalation factors for metal prices and grades. The agreements variously continue until 1975 and 1978 with the right to extend for further five year periods. Royalty income from the Coniaurum Property in 1973 was relatively modest at \$51,170 but with the progressively increasing tonnages of ore expected to be treated in future years together with higher prices for copper and gold, should result in correspondingly higher income. Westfield stated that assuming current metal prices and expected production rates, royalty income for 1974 may approximate \$150,000.

Westfield reported that the reserves in the "Main Copper Zone" of the Coniaurum Property are estimated at 1,150,000 tons with an average diluted grade of 0.60% copper and 0.04 oz. of gold per ton and estimated additional probable reserves totalling 330,000 tons grading 0.59% copper and 0.05 oz. gold. Possible ore below the tested area is not included. During 1973 the additional area of copper mineralization known as the "East Copper Zone" was probed by a series of long drill holes from underground workings. Definition drilling is not sufficiently advanced for the calculation of definite reserve tonnage. However, as Westfield reported, based on current and former drilling, the tonnage between the 3625' and the 4025' level horizons is estimated at approximately 2,000,000 tons grading 0.65% copper and 0.03 oz. of gold per ton.

Vestgron Mines Limited

At December 31, 1973 Westfield held 634,510 shares or approximately 15% of the issued capital of Vestgron. During 1973, Greenex A/S (the wholly owned subsidiary of Vestgron) brought the Black Angel lead-zinc-silver mine at Marmorilik, Greenland, into production and an



Above: The Black Angel Mine at Marmorilik, Greenland, operated by Vestgron's subsidiary, Greenex A/S, is linked by a pair of mile-long aerial tramways to the concentrator across the fjord. The tram shown carries crushed ore at the rate of 110 metric tons per hour to the 1,650 tons per day concentrator.

initial shipment of concentrates was made prior to the end of the 1973 shipping season. Concentrate output is now being stockpiled and shipments are expected to resume when the navigational season commences, usually in June.

The concentrator has been designed to treat 1,650 metric tons of ore per day to produce annually 135,000 metric tons of zinc concentrates and 35,000 metric tons of lead concentrates, the latter containing payable silver values. Reported ore reserves with respect to the Black Angel zone are estimated to be in excess of 4 million metric tons of 20% combined lead-zinc and approximately one ounce of silver per ton. There is another zone of mineralization, the "Cover Zone", lying about 1,500 metres east of the Black Angel Zone and access to this can be gained from the existing underground workings. Cominco has stated that it considers further work on the property will at least double these reserves.

Senior financing totalling \$52 million was arranged for Vestgron and its wholly owned subsidiary to cover the capital cost of bringing this mine into production. The project was completed on schedule and within 5% of the original capital cost estimate.

Under the terms of the Utilization Concession granted to Greenex by the Danish Government, Greenex is exempt from Danish income taxes on profits derived from the Black Angel mining operations as well as customs duties and other charges on machinery, instruments and other materials imported into Greenland for use in the mining project. The concession terms provide that Greenex will pay an annual royalty at the rate of 45% of the profit derived from the Black Angel mining operations, but not until Greenex has earned an amount equal to the total capital expenditures up to the commencement of production, including all exploration and pre-production development costs as well as interest expense during construction.

The profit on which royalty is to be applied is to be determined by reference to the general rules of Danish law relating to the computation of taxable income of corporations. Depreciation may be claimed at a rate of up to 30% annually on the depreciated cost of assets with the exception of interest during construction and pre-production development costs relating to tunnels and other underground workings. Depreciation also shall not be commenced until Greenex has earned an amount equal to the total capital expenditures up to the commencement of production.

Whim Creek Consolidated N.L.

At December 31, 1973 Westfield held 3,750,000 shares or approximately 34% of the issued and outstanding capital of Whim Creek and has an option to purchase up to 2,750,000 additional treasury shares at the greater of Aus.\$1.50 per share or a price equal to a 10% discount on the average market price in Australia for the 90 days preceding the date of the exercise of the option. The option extends to December 31, 1974.

Reference is made to the separate corporate profile on Whim Creek Consolidated N.L. for further information regarding this company's activities and interests.

General Exploration

In addition to its widespread exposure to exploration through affiliated companies, Westfield continues active on its own account. During the year Westfield entered into working option agreements with respect to mineral prospects in the Sturgeon Lake area of Ontario and in Hebecourt Township, Quebec. However, since the results of exploratory work carried out on these two properties did not justify continuation of the agreements, the option was terminated.

During the year, in a joint project with Northgate Exploration Limited, tracts covering an area of approximately 87 square miles were acquired in the Province of Nova Scotia. Preliminary work is scheduled on this ground as soon as weather permits.

In furtherance of its plans for expanded exploration, Westfield evaluated a number of property and other exploration submissions.

Investments

During the year Westfield sold 7,000 shares of Vestgron and purchased for investment a total of 100,000 shares of Northgate Exploration Limited, increasing its holdings in the latter company to 136,619 shares. Westfield's working capital at the end of 1973 amounted to \$435,202.

At December 31, 1973 Northgate's interest in Westfield Minerals Limited was 2,803,075 shares equal to approximately 45% of the issued and outstanding capital.

WHIM CREEK CONSOLIDATED N.L.

The activities of Whim Creek and its subsidiary companies continue dominantly in the West Pilbara area of Western Australia and during the 1972-73 fiscal period exploration was also carried out in Queensland and New South Wales together with preliminary investigations in the Northern Territory. Exploration expenditures during the period amounted to Aus.\$566,893 and working capital at June 30, 1973 was Aus.\$2,110,782. The current currency exchange rate for the Australian dollar is approximately \$1.46 Canadian.

In its report for the quarterly period ended December 31, 1973, Whim Creek announced that a decision had been made to commence a comprehensive study of the feasibility of an operation or operations on the Whim Creek, Whundo and Mt. Sholl properties.

At the Whim Creek Mine where there is a small concentrator complex on a care and maintenance basis, the estimated reserves are 150,000 tons of oxide ore grading 4.8% copper and 325,000 tons of sulphide ore grading 2.5% copper. At the Mt. Sholl property drilling to date has outlined a reported probable tonnage of 3,650,000 tons averaging 0.61% copper and 0.53% nickel at a cut-off grade of 0.50% copper-nickel combined. Both of these properties are wholly owned.

With respect to the Whundo Joint Venture in which Whim Creek holds an approximate 79% interest, reported estimates of the probable tonnages are 75,000 tons of oxide ore averaging 1.95% copper, 225,000 tons of secondary enriched sulphide ore grading 2.5% copper, and 510,000 tons of primary sulphide averaging 1.82% copper and 2.09% zinc. In addition, there is a high grade shoot of secondary sulphide totalling 10,000 tons grading 20% copper.

Information regarding the Mons Cupri properties which are under option to Australian Inland Exploration Inc. (wholly owned subsidiary of Texasgulf) is substantially unchanged from that reported in Westfield's 1972 Annual Report, except for recent announcements by Texasgulf that studies were in progress for copper recovery by leaching and that plans are being made to bring the Mons Cupri into production at a rate of 1,500 to 2,000 tons of ore per day.

Whim Creek holds a non-contributory interest in the Mons Cupri properties amounting to 31½%, the remainder held by Australian Inland.

At December 31, 1973 Northgate's direct interest in Whim Creek was 2,250,000 shares equal to approximately 24% of the issued and outstanding capital. Northgate also has an option to purchase an additional 2,250,000 shares of Whim Creek on the same terms and conditions as the option granted to Westfield Minerals Limited.

The effects of the hydraulic seeding on former rock waste dumps provide this lush growth of vegetation at the Tynagh Mine.



Financial Statements

Northgate Exploration Limited Annual Report

Auditors' Report

To the Shareholders of
Northgate Exploration Limited

We have examined the consolidated balance sheet of Northgate Exploration Limited and its wholly owned subsidiary companies as at December 31, 1973 and the consolidated statements of income, retained earnings and source and application of funds for the year then ended. Our examination of the financial statements of Northgate Exploration Limited (the parent company) included a general review of the accounting procedures and such tests of accounting records and other supporting evidence as we considered necessary in the circumstances. With respect to the subsidiary companies of which we are not the auditors, we have carried out such enquiries and examinations as we considered necessary in order to rely for purposes of consolidation on the reports of their auditors.

In our opinion these consolidated financial statements present fairly the financial position of the companies as at December 31, 1973 and the results of their operations and the source and application of their funds for the year then ended, in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

THORNE GUNN & CO.,
Chartered Accountants

Toronto, Canada
February 8, 1974



Northgate Exploration Limited

Consolidated Balance Sheet – December 31, 1973

(with comparative figures at December 31, 1972)

Expressed in Canadian dollars

ASSETS

Current Assets

Cash, including term deposits	
Smelter settlements outstanding at estimated net realizable value	
Concentrates and metal on hand (note 1(c))	
Supplies at cost	
Accounts receivable and prepaid expenses	

Investments in Associated and Other Companies

Associated companies	
Shares (notes 1(a) (ii) and 2)	
Advances.....	
Other listed shares at cost less amounts written off (quoted market value, 1973, \$11,686,000; 1972, \$6,491,000) (note 4).....	
Other shares, advances and participations at cost less amounts written off	

Less provision for decline in value	
---	--

Fixed Assets

Buildings, machinery and equipment at cost	
Land in Ireland at cost	
Mining claims in Canada	

Less accumulated depreciation (note 1(d))	
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Other Assets and Deferred Charges (note 1(d) and (e))

Preproduction expenditures less amortization	
Underground development expenditures less amortization	
Other deferred charges	

LIABILITIES AND SHAREHOLDERS' EQUITY

Current Liabilities

Bank advances	
Accounts payable and accrued liabilities	
Government royalty payable	
Accrued Irish income tax on interest earned	

Shareholders' Equity

Capital stock (notes 5 and 8)	
Authorized — 10,000,000 shares of \$1 each	
Issued — 5,992,549 shares (1972, 5,981,799 shares)	
Contributed surplus	
Retained earnings	

Approved by the Board: G. T. SMITH, Director. M. K. PICKARD, Director.
See accompanying notes.

	1973	1972
.....	\$ 2,567,000	\$ 50,000
.....	8,072,000	3,274,000
.....	3,540,000	4,668,000
.....	1,412,000	1,339,000
.....	635,000	313,000
	<u>16,226,000</u>	<u>9,644,000</u>

.....	4,930,000	4,851,000
.....	424,000	413,000
.....	13,864,000	7,346,000
.....	621,000	800,000
	<u>19,839,000</u>	<u>13,410,000</u>
.....	1,250,000	1,400,000
	<u>18,589,000</u>	<u>12,010,000</u>

.....	21,433,000	21,927,000
.....	1,040,000	1,037,000
.....	1,000	1,000
	<u>22,474,000</u>	<u>22,965,000</u>
.....	12,332,000	10,765,000
	<u>10,142,000</u>	<u>12,200,000</u>

.....	471,000	1,129,000
.....	3,757,000	4,101,000
.....	161,000	748,000
	<u>4,389,000</u>	<u>5,978,000</u>
	<u>\$49,346,000</u>	<u>\$39,832,000</u>

	1973	1972
.....	\$ 479,000	\$ 1,846,000
.....	2,351,000	1,552,000
.....	1,253,000	349,000
.....	186,000	189,000
	<u>4,269,000</u>	<u>3,936,000</u>

.....	5,993,000	5,982,000
.....	3,187,000	3,137,000
.....	35,897,000	26,777,000
	<u>45,077,000</u>	<u>35,896,000</u>
	<u>\$49,346,000</u>	<u>\$39,832,000</u>



Consolidated Statement of Income

YEAR ENDED DECEMBER 31, 1973
(with comparative figures for 1972)
Expressed in Canadian dollars

Revenue	1973	1972
Metals and metal concentrates	\$42,816,000	\$26,891,000
Deduct shipping, smelting and marketing expenses	14,700,000	10,176,000
	<u>28,116,000</u>	<u>16,715,000</u>
 Operating expenses		
Operating expenses other than items set out below	11,080,000	8,468,000
Administrative and general expenses	1,315,000	835,000
Government royalty	1,171,000	263,000
Interest (including bond interest in 1972, \$135,000)	249,000	317,000
Depreciation (note 1(d))	2,797,000	2,431,000
Amortization of preproduction and other expenditures (note 1(d))	1,373,000	1,244,000
	<u>17,985,000</u>	<u>13,558,000</u>
	10,131,000	3,157,000
Exploration (note 1(e))	526,000	422,000
	<u>9,605,000</u>	<u>2,735,000</u>
Equity in income of associated companies (notes 1(a)(ii) and 2) ..	78,000	33,000
Interest, dividends and profits on sale of investments (note 6)	337,000	326,000
Income before extraordinary item	<u>10,020,000</u>	<u>3,094,000</u>
Provision for decline in value of investments	900,000	
Net income for the year (note 6)	<u>\$ 9,120,000</u>	<u>\$ 3,094,000</u>

Earnings per share

Income before extraordinary item	\$1.67	\$0.51
Provision for decline in value of investments	(0.15)	
Net income for the year (note 8)	<u>\$1.52</u>	<u>\$0.51</u>

Consolidated Statement of Retained Earnings

YEAR ENDED DECEMBER 31, 1973
(with comparative figures for 1972)
Expressed in Canadian dollars

	1973	1972
Balance at beginning of year		
As previously reported	\$26,877,000	\$23,816,000
Adjustment required on adoption of equity accounting (notes 1(a)(ii) and 2)	100,000	133,000
As restated	26,777,000	23,683,000
Net income for the year	9,120,000	3,094,000
Balance at end of year	<u>\$35,897,000</u>	<u>\$26,777,000</u>

Consolidated Statement of Source and Application of Funds

YEAR ENDED DECEMBER 31, 1973
(with comparative figures for 1972)
Expressed in Canadian dollars

Source of funds	1973	1972
Income before extraordinary item	\$10,020,000	\$3,094,000
Income and expense items not affecting working capital		
Depreciation and amortization	4,170,000	3,675,000
Equity in income of associated companies	(78,000)	(33,000)
	14,112,000	6,736,000
Shares issued under the company's Stock Option Plan (note 5)	61,000	
Reduction in concentrates on hand, non-current		743,000
Other items	216,000	127,000
	<u>14,389,000</u>	<u>7,606,000</u>
Application of funds		
Investments	7,401,000	317,000
Additions to fixed assets (net)	739,000	398,000
Underground mine development		1,311,000
	8,140,000	2,026,000
Increase in working capital	6,249,000	5,580,000
Working capital at beginning of year	5,708,000	128,000
Working capital at end of year	<u>\$11,957,000</u>	<u>\$5,708,000</u>

Notes to Consolidated Financial Statements

YEAR ENDED DECEMBER 31, 1973

Expressed in Canadian dollars

1. Summary of Significant Accounting Policies

(a) Principles of consolidation

- (i) The consolidated financial statements include the accounts of all wholly owned subsidiary companies; the more significant subsidiaries are:

Irish Base Metals Limited
Gortdrum Mines (Ireland) Limited
Powertrack Mining Limited

- (ii) In 1973 the company changed from the cost basis to the equity basis of accounting for its investment in associated companies and made retroactive adjustment for 1972 and prior years. The effect of this change was not material. Under the equity basis, the company's equity in the net income or loss of the associated companies is reflected in the statement of income and an adjustment is made to the value at which the investment is carried in the balance sheet (note 2).

(b) Currency conversion

Currency balances other than in Canadian dollars have been converted to Canadian dollars at December 31, 1973 and 1972 as follows:

- (i) Smelter settlements outstanding and concentrates and metal on hand at rates of exchange estimated at time of settlement.
(ii) Other current assets and liabilities at rates of exchange which approximate the rates at December 31, 1973 and 1972.
(iii) Other assets and deferred charges, and the related depreciation and amortization charged to income, at approximate rates prevailing when funds for the expenditures were provided.
(iv) Other operating accounts have been converted at the average rate of exchange prevailing during each year.

(c) Concentrates and metal on hand

Concentrates and metal on hand, in accordance with accounting practices established in prior years, have been valued as follows:

	1973	1972
Tynagh Mine, at estimated net realizable value	\$2,356,000	\$2,447,000
Gortdrum Mine, at the lower of cost and estimated net realizable value	1,184,000	2,221,000
	<u>\$3,540,000</u>	<u>\$4,668,000</u>

(d) Depreciation and amortization

Depreciation of fixed assets has been recorded at various rates to charge the cost to income over the shorter of the expected useful lives of the assets or the life of the estimated ore reserves.

Preproduction expenditures are being amortized over the estimated lives of the open pit mines and underground development expenditures are being amortized over the estimated life of the underground mine.

The amounts by which the cost of shares in consolidated subsidiary companies exceeds the related book value of underlying net assets are being amortized over the estimated life of the Gortdrum Mine. The unamortized balances are included in other deferred charges.

(e) Exploration

The company and consolidated subsidiaries charge exploration expenditures to income in the period in which incurred. Non-producing associated mining companies defer exploration and administrative expenditures as set out in note 2. Development costs are deferred and amortized by charges to future income.

2. Associated Companies

The investment in shares of associated companies is carried on the equity basis

	1973		1972	
	% of shares outstanding	Carrying value	% of shares outstanding	Carrying value
Westfield Minerals Limited	45%	\$3,348,000	45%	\$3,281,000
Whim Creek Consolidated N.L. (notes 3 and 8)	20%	645,000	20%	633,000
Anglo United Development Corporation Limited	17%	624,000	17%	624,000
Smelter Corporation of Ireland Limited	70%	313,000	70%	313,000
		<u>\$4,930,000</u>		<u>\$4,851,000</u>

The company's equity in the underlying net book values of associated companies is reconciled to the carrying value on the equity basis of the investment as follows:

	1973	1972
Equity in net tangible assets	\$2,394,000	\$2,370,000
Equity in deferred exploration and administrative expenditures	1,536,000	1,473,000
Excess of cost of investment over underlying net book values — attributed to mineral interests	1,022,000	1,108,000
Equity in earnings (losses) since acquisition	(22,000)	(100,000)
	<u>\$4,930,000</u>	<u>\$4,851,000</u>

The associated companies in the mineral exploration business have deferred exploration and administrative expenditures with the intention that they should be amortized by charges against income from future mining operations. The company would also amortize, by charges against its interest in such income, the excess of cost of investment over underlying net book values. The recovery of these costs from operations is dependent, therefore, upon the discovery of sufficient ore and the development by the associated companies of economic mining operations.

The quoted market value of the shares in Westfield Minerals, Whim Creek and Anglo United Development amounted to \$4,985,000 at December 31, 1973 and \$9,385,000 at December 31, 1972. However, because of the number of shares held, the quoted market value is not necessarily indicative of their realizable value. Smelter Corporation of Ireland Limited, a private company with no quoted shares, has reported neither profit nor loss as all of its expenditures are deferred to future operations.

3. Whim Creek Consolidated N.L.

Northgate Exploration has an option to purchase a further 2,250,000 shares of Whim Creek at the greater of Australian \$1.50 per share or a price 10% less than the average market price in Australia for the 90 days preceding the date of exercise of the option. The option expires on December 31, 1974.

Northgate Exploration and Westfield Minerals, an associated company which has a similar option on 2,750,000 shares, and which with Northgate Exploration controls Whim Creek, have undertaken to exercise these options, in whole or in part, on request, to provide funds required by Whim Creek to carry out exploration or development programmes approved by the Board of Directors of Whim Creek. Exercise of these options may be subject to review under Australian foreign ownership legislation.

4. Other Listed Shares

Other listed shares include:

- (a) An investment in 630,441 shares of Tara Exploration and Development Company Limited carried in the accounts at a cost of \$9,205,000, representing 9.8% of the shares outstanding at December 31, 1973 (156,500 shares at a cost of \$1,653,000 representing 2.7% at December 31, 1972). The quoted market value of \$7,881,000 at December 31, 1973 (\$2,543,000 at December 31, 1972) is not necessarily indicative of their realizable value because of the number of shares held.

- (b) An investment in 129,032 common shares of W. R. Grace & Co. carried in the accounts at a cost of \$4,006,000 which Northgate Exploration received in consideration for 1,156,571 shares of Western Mines Limited sold in 1971. The quoted market value was \$3,145,000 at December 31, 1973 (\$3,420,000 at December 31, 1972).

5. Stock Option Plan

Pursuant to the Officers' and Employees' Stock Option Plan, options may be granted until June 3, 1979 on up to 250,000 shares of the company's capital stock at prices not less than 90% of the closing price for the company's shares on The Toronto Stock Exchange on the dates the options are granted.

Outstanding at December 31, 1973 are options granted in 1972 on 173,500 shares at \$5.76 per share, exercisable 55,500 shares to April 30, 1974, 59,000 shares to April 30, 1975 and 59,000 shares to April 30, 1976 and options granted in 1973 on 49,250 shares at \$5.54 per share, exercisable 42,650 shares to May 6, 1974, 3,400 shares to May 6, 1975 and 3,200 shares to May 6, 1976.

During 1973, options were exercised on 10,750 shares amounting to \$61,000

6. Income Taxes

The consolidated Irish subsidiary companies' income from mining operations under present laws is exempt from Irish income tax for twenty years from the dates of commencement of production. However, the Irish Government by announcements on September 25 and October 19, 1973, indicated its intention to withdraw this exemption from April 1974. Details of the proposed amending legislation have not yet been made available.

The consolidated Irish subsidiary companies' income from sources other than mining operations is subject to tax at full rates. Irish income tax has been deducted from interest in the statement of income in the amount of \$37,600 for 1973 and \$33,000 for 1972.

Dividends from the consolidated subsidiary companies are not subject to Irish withholding tax or Canadian income taxes.

7. Other Statutory Information

Remuneration of the company's directors and senior officers (as defined by The Business Corporations Act of Ontario) amounted to \$329,000 for 1973 and \$265,000 for 1972.

At December 31, 1973 a receivable from a director amounted to \$35,000.

8. Subsequent Event

On January 25, 1974 the company offered, subject to confirmation by shareholders of Northgate Exploration and Westfield Minerals, to purchase from Westfield Minerals 220,000 shares of Vestgron Mines and 1,250,000 shares of Whim Creek in consideration for \$350,000 in cash and 800,000 treasury shares of Northgate Exploration.

If Northgate Exploration's offer is accepted and approved its total holdings of Whim Creek would be increased to 3,500,000 shares or 32% of the shares outstanding and Westfield Minerals would hold 936,619 shares representing 14% of Northgate Exploration's shares then outstanding.

Proforma 1973 earnings per share based on the increased shares that would be outstanding if this transaction had occurred at the beginning of the year would be \$1.34 per share.

Northgate Exploration Limited

OFFICERS

Patrick J. Hughes,
President

George T. Smith,
*Executive Vice-President
and Secretary*

Sylvester P. Boland,
Vice-President of Finance

Matthew Gilroy,
Vice-President

A. Garfield Heyes,
Vice-President of Corporate Relations

Michael Stuart,
Vice-President of Operations

Michel Trebucq,
Vice-President of Marketing

Robert H. Wright
Treasurer

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Chartered Accountant*

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*Toronto, Canada
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Partner, Derry, Michener & Booth, Consulting Geologists*

Matthew Gilroy,
*Dublin, Republic of Ireland
Business Executive*

Patrick J. Hughes,
*Dublin, Republic of Ireland
Business Executive*

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Partner, James & Buffam, Consulting Geologists*

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Michel Trebucq,
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George M. Wilson,
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Equitable Securities Limited*

Irish Base Metals Limited

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D. R. Derry <i>Toronto, Canada</i>	G. T. Smith <i>Toronto, Canada</i>
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M. Gilroy <i>Dublin, Ireland</i>	G. H. White <i>London, England</i>
P. J. Hughes <i>Dublin, Ireland</i>	H. S. White <i>Toronto, Canada</i>
W. F. James <i>Toronto, Canada</i>	G. M. Wilson <i>Toronto, Canada</i>
J. K. McCausland <i>Toronto, Canada</i>	

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B. S. W. Buffam
Toronto, Canada
P. Harrington
Dublin, Ireland
W. Horster
Frankfurt, Germany
M. V. OBrien
Dublin, Ireland
A. M. R. Sylvester
London, England

OFFICERS

Patrick J. Hughes
Chairman of the Board
Sylvester P. Boland
Secretary

MINE MANAGER

D. H. B. FitzGerald

Gortdrum Mines (Ireland) Limited

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R. R. B Dickson <i>London, England</i>	M. K. Pickard <i>Toronto, Canada</i>
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W. F. James <i>Toronto, Canada</i>	

SUBSTITUTE DIRECTORS

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Dublin, Ireland
J. V. McParland
Newry, Northern Ireland

OFFICERS

Patrick J. Hughes
Chairman of the Board
Sylvester P. Boland
Secretary

MINE MANAGER

Derick Morris

Northgate Exploration Limited

Five Year Comparative Summary of Financial Highlights

Net Smelter Revenue

Operating Income (before w.o.'s)
Depreciation and amortization
Exploration
Non-operating revenues (net)
Provision for decline in value of investments
Net Income (loss)
Net Income (loss) per share
Cash Flow
Per Share
Cash Dividends
Per Share

FIVE YEAR COMPARATIVE SUMMARY OF FINANCIAL POSITION

Working Capital
Investments in affiliated and other companies (net)
Fixed Assets (net)
Other Assets and Deferred Charges
Total Invested Capital
Long Term Debt
Shareholders' Equity
Shares Outstanding
Book Value/Share
Share Price High/Low

FIVE YEAR COMPARATIVE SUMMARY OF PRODUCTION HIGHLIGHTS

Tons Ore Mined
Tons Ore Preconcentrated
Tons Ore Treated in Concentrator
Concentrate Production
Lead
Zinc
Bulk
Totals
Metals in Concentrates
Lead (lbs.)
Zinc (lbs.)
Copper (lbs.)
Silver (ozs.)
Tons Treated in Concentrator
Tons of Concentrates Produced
Tons of Roasted Concentrates Produced
Flasks of Mercury Recovered
Tons of Concentrates Sold
Flasks of Mercury Sold
Metals in Concentrates Sold
Copper (lbs.)
Silver (ozs.)

1973	1972	1971	1970	1969
\$ 28,116,000	\$ 16,715,000	\$ 13,187,000	\$ 19,646,000	\$ 23,375,000
14,551,000	7,149,000	4,457,000	10,514,000	14,550,000
4,170,000	3,675,000	4,187,000	3,537,000	3,264,000
526,000	422,000	1,081,000	979,000	648,000
337,000	326,000	358,000	1,458,000	405,000
900,000		550,000	850,000	
9,120,000	*3,094,000	* (1,353,000)	* 6,258,000	*10,534,000
\$ 1.52	\$ 0.51	(\$ 0.22)	\$ 1.05	\$ 1.76
14,112,000	6,736,000	3,431,000	10,655,000	13,805,000
\$ 2.35	\$ 1.13	\$ 0.57	\$ 1.78	\$ 2.31
—	—	1,510,000	2,826,000	2,737,000
—	—	(U.S.)\$ 0.25	(U.S.)\$ 0.50	(U.S.)\$ 0.50

\$ 11,957,000	\$ 5,708,000	\$ 128,000	\$ 6,521,000	\$ 6,470,000
18,589,000	12,010,000	11,660,000	11,201,000	10,347,000
10,142,000	12,200,000	11,158,000	11,430,000	11,345,000
4,389,000	5,978,000	9,856,000	8,535,000	7,418,000
45,077,000	35,896,000	32,802,000	37,687,000	35,580,000
			2,022,000	3,347,000
45,077,000	35,996,000	32,935,000	35,665,000	32,223,000
5,992,549	5,981,799	5,981,799	5,981,799	5,981,799
\$ 7.52	\$ 6.00	\$ 5.48	\$ 5.96	\$ 5.39
\$6.35/3.95	\$6.90/4.30	\$11.25/4.35	\$18.38/7.90	\$19.12/12.75

TYNAGH MINE

682,734	661,312	675,781	697,643	501,240
533,026	239,090			
529,417	422,222	675,781	687,643	501,240
74,400	57,828	53,932	92,759	77,257
22,807	35,872	43,779	22,051	24,797
14,363	39,100	52,905	29,683	31,665
111,570	132,800	150,616	144,493	133,719
91.0 million	90.4 million	78.5 million	106.8 million	83.3 million
32.8 million	61.6 million	63.9 million	39.6 million	46.3 million
2.7 million	4.1 million	4.6 million	5.6 million	4.2 million
1,456,000	1,242,000	1,057,000	1,748,000	1,514,000

GORTDRUM MINE

330,226	401,635	536,638	510,636	516,764
7,106	11,590	12,949	13,681	13,153
7,803	10,869	12,394	9,818	2,669
1,345	1,250	2,345	1,304	420
13,970	13,332	12,661	9,550	15,786
1,300	1,308	2,232	1,610	
9.9 million	9.5 million	8.7 million	6.3 million	11.3 million
344,000	335,000	366,000	246,000	413,000

NOTE: (a) Certain of the financial figures for 1972 and prior years have been restated to reflect the Company's change to the equity basis of accounting for its investment in associated companies.



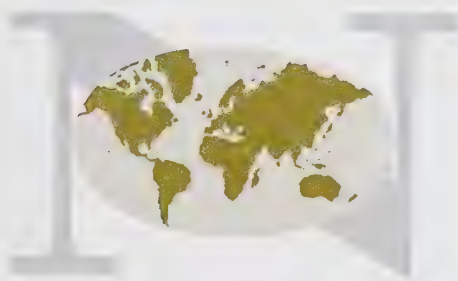
Drilling operation underground at the Tynagh Mine.



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SEMI-ANNUAL REPORT
For the Period Ended
June 30, 1973



NORTHGATE
EXPLORATION
LIMITED

NORTHGATE EXPLORATION LIMITED

Suite 2602, Royal Trust Tower
P.O. Box 27, Toronto-Dominion Centre
Toronto M5K 1A1, Canada

To the Shareholders:

Statements of consolidated net income and source and application of funds for the six months ended June 30, 1973 together with comparative figures for the corresponding period in 1972 are attached.

Consolidated Financial Results

Cash flow for the six months ended June 30, 1973 amounted to \$7,059,000, equal to \$1.18 per issued share and net income after deducting an extraordinary item was \$4,625,000 or \$0.77 per share. The extraordinary item was a provision for the decline in the value of investments amounting to \$400,000.

The comparative figures for the corresponding period in 1972 were cash flow of \$3,780,000 equal to \$0.63 per share and net income of \$1,801,000 or \$0.30 per share.

The improved financial results for the six months ended June 30, 1973 as compared to those for the corresponding period in 1972, were primarily attributable to the higher prices for lead, zinc, copper and silver. It is noted that the financial results for the six month period ended June 30, 1973 exceed the previously published forecast for the full year. The earlier prediction was based on metal prices lower than those which prevailed during the second quarter, notably with respect to lead and copper which had been considered in the forecast at prices of 16¢ and 61.5¢ per pound, respectively.

Among other contributing factors to the higher than anticipated operating revenues for the second quarter was the treat-

ment of a quantity of secondary ore that was reclassified from primary ore reserves and which was of better than average grade of metal content. It is anticipated that concentrate production will be at a lower rate during the second half of 1973 owing to the changeover of the concentrator from partial to full treatment of the primary sulphide ore following the completion of treatment of the remaining secondary ores during June, 1973.

Subject to year end adjustments, the revised forecast for the full 1973 year envisages net income of approximately \$7 million equal to about \$1.17 per share and cash flow of approximately \$12 million or about \$2.00 per share. These projections are based on the following average metal prices prevailing during the second half of 1973:

Lead	—	£170 per metric ton (approximately 19.7¢ per lb.)
*Zinc	—	£220 per metric ton (approximately 25¢ per lb.)
Copper	—	£650 per metric ton (approximately 75¢ per lb.)
Silver	—	£1.10 per ounce (approximately \$2.80 per oz.)

*GOB European Producer Price; all others based on London Metal Exchange quotations.

Operations

Tynagh Mine

During the three months ended June 30, 1973, 149,985 tons of ore were treated in the concentrator including 72,290 tons of primary sulphide preconcentrated product from the dense media plant and 77,694 tons of secondary mixed oxide ore.

Concentrate production amounted to 22,644 tons of lead concentrates, 4,288 tons of zinc concentrates and 7,860 tons of bulk (combined lead-zinc) concentrates, a total of 34,792 tons.

Treatment of the remaining secondary ore was completed during June and the concentrator has now been converted to treat primary ore in both mill circuits. It is noted that a total of

149,708 tons of secondary oxide ore was treated during the first six months of 1973 which is well above prediction. This reflects the reclassification of a quantity of primary ore to secondary ore.

Gortdrum Mine

During the three months ended June 30, 1973 the concentrator treated a total of 86,248 tons of ore and concentrate production for this period (prior to roasting in the mercury plant) amounted to 1,836 tons. In this period a total of 2,518 tons of concentrates was treated in the mercury plant producing 2,428 tons of roasted concentrates. A total of 403 flasks of mercury was recovered. Shipments totalling 4,056 tons of concentrates and 400 flasks of mercury were made during the period.

General

On June 5, 1973 your Company purchased for investment 355,341 shares of Tara Exploration and Development Company Limited at a price of \$16.00 per share for a total consideration of \$5,685,456. This purchase was made in furtherance of the previously announced undertaking by your Company to purchase any Tara shares that were not subscribed for pursuant to a rights offering by Tara to its shareholders (other than United States shareholders) that expired on May 31, 1973.

Your Company now holds a total of 605,341 shares or approximately 9.4% of the presently issued and outstanding shares of Tara Exploration and Development Company Limited.

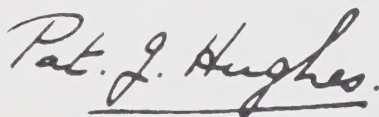
Site clearance and preparation for the construction programme at the Navan zinc-lead mine of Tara in County Meath, Ireland, commenced during January, 1973. Underground work, initially comprising the sinking of an access shaft and the driving of the decline tunnel, is proceeding. On the basis of present schedules, it is anticipated that the Navan Mine will commence production by mid-1975. Mining will be by underground methods

and the concentrator complex will have an initial design capacity of 7,500 tons per day and when in full production the anticipated annual output will amount to 420,000 metric tons of concentrates containing some 240,000 metric tons of zinc and lead in the approximate ratio of 5:1.

To date, approximately \$14 million has been expended on this initial phase of the Navan Mine project. Tara reported that arrangements for senior debt financing to complete the construction of the concentrator and ancillary surface facilities, and to develop the mine for production, are essentially complete. Finalization of these financing arrangements is subject to obtaining acceptable State Mining Lease terms.

Your Company considers this investment in Tara to have important long term potential. On the basis of projected capacity operations, Tara's Navan Mine would be the largest individual zinc producer in Europe and rank among the leading producers throughout the world.

On behalf of the Board of Directors,

A handwritten signature in dark ink, reading "Pat. J. Hughes." The signature is written in a cursive style and is underlined.

"PATRICK J. HUGHES"

President

August 10, 1973

NORTHGATE EXPLORATION LIMITED

CONSOLIDATED STATEMENT OF INCOME (UNAUDITED)

Six months ended June 30, 1973
(with comparative figures for 1972)
(expressed in Canadian dollars)

	1973	1972
Revenue		
From metals and metals concentrates	\$21,475,000	\$13,414,000
Less shipping, smelting and marketing expenses	7,968,000	4,924,000
	13,507,000	8,490,000
Operating Expenses		
Operating expenses other than items set out below	5,386,000	3,953,000
Administrative and general expenses	397,000	379,000
Government royalty	524,000	118,000
Interest (including bond interest)	88,000	189,000
Depreciation	1,435,000	1,283,000
Amortization of pre-production, financing and other expenditures	599,000	696,000
	8,429,000	6,618,000
Net operating Profit Before Exploration	5,078,000	1,872,000
Exploration expenses	188,000	208,000
Net Operating Profit	4,890,000	1,664,000
Add interest, dividends and profit on sale of investments	135,000	137,000
Income before extraordinary item	5,025,000	1,801,000
Provision for decline in value of investments	400,000	—
Net Income	\$ 4,625,000	\$ 1,801,000
Cash Flow		
Income before extraordinary item	\$ 5,025,000	\$ 1,801,000
Add non-cash write-offs	2,034,000	1,979,000
	\$ 7,059,000	\$ 3,780,000
Cash flow per share issued	\$1.18	\$0.63
Net income per share issued	\$0.77	\$0.30

NORTHGATE EXPLORATION LIMITED

CONSOLIDATED STATEMENT OF SOURCE AND APPLICATION OF FUNDS (UNAUDITED)

Six months ended June 30, 1973
(with comparative figures for 1972)
(expressed in Canadian dollars)

	1973	1972
Source of Funds		
Income before extraordinary item	\$5,025,000	\$1,801,000
Add depreciation and amortization charged to income not requiring cash outlay	2,034,000	1,979,000
	<u>7,059,000</u>	<u>3,780,000</u>
Shares issued under Company's Stock Option Plan ..	26,000	—
	<u>7,085,000</u>	<u>3,780,000</u>
Application of Funds		
Additions to fixed assets	285,000	87,000
Investments in and advances to other mining com- panies, less sales and repayments	7,447,000	(311,000)
Underground mine development	—	614,000
	<u>7,732,000</u>	<u>390,000</u>
Increase (decrease) in funds held	<u>\$ (647,000)</u>	<u>\$3,390,000</u>



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